WHAT IS CLAIMED IS:

1. A method of cloning a pig, comprising:

(i) inserting a desired differentiated pig cell or cell nucleus into an enucleated pig oocyte, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit; and

(iii) transferring said cultured NT unit to a host mammal such that the NT unit develops into a fetus.

2. The method according to claim 1, which further comprises developing the fetus to an offspring.

3. The method according to claim 1, wherein a desired DNA is inserted, removed or modified in said differentiated pig cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

4. The method according to claim 3, which further comprises developing the fetus to an offspring.

5. The method according to claim 1, which comprises culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage.

6. The method according to claim 1, wherein the differentiated pig cell or cell nucleus is derived from mesoderm.

7. The method according to claim 1, wherein the differentiated pig cell or cell nucleus is derived from ectoderm.

8. The method according to claim 1, wherein the differentiated pig cell or cell nucleus is derived from endoderm.

9. The method according to claim 1, wherein the differentiated pig cell or cell nucleus is a fibroblast cell or cell nucleus.

10. The method according to claim 1, wherein the differentiated pig cell or adult cell nucleus is an adult cell or cell nucleus.

11. The method according to claim 1, wherein the differentiated pig cell or cell nucleus is an embryonic or fetal cell or cell nucleus.

12. The method according to claim 1, wherein the enucleated oocyte is matured prior to enucleation.

13. The method according to claim 1, wherein the ~~fused~~ nuclear transfer unit is activated by exposure to two electrical pulses.

14. The method according to claim 1, wherein the ~~fused~~ nuclear transfer unit is activated by exposure to a single electrical pulse.

15. The method according to claim 1, wherein the ~~fused~~ nuclear transfer unit is activated by exposure to at least one activating factor ~~derived~~ isolated from sperm cells.

16. The method according to claim 3, wherein microinjection is used to insert a heterologous DNA.

17. The method according to claim 3, wherein electroporation is used to insert a heterologous DNA.

18. A fetus obtained according to the method of claim 1.

19. An offspring obtained according to the method of claim 2.

20. Progeny of the offspring according to claim 19.

21. A transgenic fetus obtained according to the method of claim 3.

22. A transgenic offspring obtained according to the method of claim 4.

23. Progeny of the offspring according to claim 22.

24. The method according to claim 1, which further comprises combining the cloned NT unit with a fertilized embryo to produce a chimeric embryo.

25. The method according to claim 24, which further comprises developing the fetus to an offspring.

26. A fetus obtained according to the method of claim 24.

27. An offspring obtained according to the method of claim 25.

28. Progeny of the mammal according to claim 27.

29. A method of producing a CICM cell line, comprising:

(i) inserting a desired differentiated pig cell or cell nucleus into an enucleated pig oocyte, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit; and

(iii) culturing cells obtained from said cultured NT unit to obtain a pig CICM cell line.

30. The method of claim 29, which comprises culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage.

31. A CICM cell line obtained according to the method of claim 29.

32. The method according to claim 29, wherein a desired DNA is inserted, removed or modified in said differentiated pig cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

33. A transgenic CICM cell line obtained according to claim 32.

34. The method of claim 29, wherein the resultant CICM cell line is induced to differentiate.

35. Differentiated cells obtained by the method of claim 34.

36. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic differentiated cells according to claim 35.

37. The method of Claim 36, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

38. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic cells obtained from a fetus according to claim 18.

39. The method of Claim 38, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

40. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic cells obtained from an offspring according to claim 19.

41. The method of Claim 40, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

42. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic transgenic cells obtained from a transgenic fetus according to claim 21.

43. The method of Claim 42, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

44. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic transgenic cells obtained from a transgenic offspring according to claim 22.

45. The method of Claim 44, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis,

muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

46. A method of producing a pharmaceutically active protein, comprising isolating a pharmaceutically active protein which is expressed by a transgenic offspring according to claim 22.

47. The method according to claim 29, which further comprises combining the cloned NT unit with a fertilized embryo to produce a chimera.

48. The method according to claim 47, which further comprises developing the chimeric CICM cell line to a chimeric embryo.

49. A chimeric embryo obtained according to claim 48.

50. The method according to claim 48, which further comprises developing the chimeric embryo to a chimeric fetus.

51. A chimeric fetus obtained according to claim 50.

52. The method according to claim 50, which further comprises developing the chimeric fetus to a chimeric offspring.

53. A chimeric offspring obtained according to claim 52.

54. The method according to claim 47, wherein a desired DNA is inserted, removed or modified in said differentiated pig cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

55. The method according to claim 54, which further comprises developing the chimeric CICM cell line to a chimeric embryo.

56. A chimeric embryo obtained according to claim 55.

57. The method according to claim 55, which further comprises developing the chimeric embryo to a chimeric fetus.

58. A chimeric fetus obtained according to claim 57.

59. The method according to claim 57, which further comprises developing the chimeric fetus to a chimeric offspring.

60. A chimeric offspring obtained according to claim 59.

61. A method of cloning a pig, comprising:

(i) inserting a desired differentiated pig CICM cell or cell nucleus into an enucleated pig oocyte, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit; and

(iii) transferring said cultured NT unit to a host mammal such that the NT unit develops into a fetus.

62. The method according to claim 61, which comprises culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage.

63. The method according to claim 61, which further comprises developing the fetus to an offspring.

64. A fetus obtained according to the method of claim 61.

65. An offspring obtained according to the method of claim 62.

66. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 19.

67. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 22.

68. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 27.

69. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 60.

70. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 65.

71. An offspring according to claim 19, which comprises an agriculturally useful trait.

72. An offspring according to claim 22, which comprises an agriculturally useful trait.

73. An offspring according to claim 27, which comprises an agriculturally useful trait.

74. An offspring according to claim 60, which comprises an agriculturally useful trait.

75. An offspring according to claim 65, which comprises an agriculturally useful trait.

sub a8

76. A transgenic pig.

77. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 76.

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78. The method according to claim 45, wherein the pharmaceutically active protein is isolated from milk of the transgenic offspring.

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